



April 23, 2020
Our File: 218173

Saugeen Valley Conservation Authority
1078 Bruce Road 12, P.O. Box 150
Formosa, Ontario N0G 1W0

Attention: Mr. Michael Oberle

Re: SVCA Safe Access
Wilder Lake Subdivision
Geographic Township of Egremont
Municipality of Southgate

Dear Mr. Oberle:

This letter is further to your letter dated March 27, 2020 regarding the proposed Wilder Lake Subdivision. Following your letter, we had several conversations to clarify what is required to address stormwater management comment No. 2 from your March 27 letter. From our discussions, I understand that the floodplain analysis was only required to provide confirmation that safe access to the property is maintained. This letter is provided to address the safe access requirements.

To address the historical situation regarding Camp Creek as it passes through the subject property, I refer to the attached letter prepared by Mr. Harry Bye, P.Eng. from H. Bye Construction. Harry provides a summary of the historical facts regarding the culvert sizes, observations of flow depths in the creek and at the culverts, and pictures of the various crossings.

As shown in Picture 4 from the attached letter, the outlet flow from Wilder Lake is controlled by the ground elevation of Camp Creek as it leaves Wilder Lake. It is also noted in the letter that Wilder Lake is a spring fed lake. This reduces the potential for peak flows to enter the lake, which typically means a more stable water elevation.

Looking at the SVCA safe access requirement, the SVCA would like confirmation that during a Regional Storm, such as if Hurricane Hazel were to occur in the Wilder Lake area, that the roadway into the Wilder Lake Subdivision will remain accessible and that there will not be flow over the access road. While a floodplain study would confirm this, given the water elevation in Wilder Lake and the elevation of the access road into the subdivision, we feel such a study is not necessary to confirm safe access.

As noted on the design drawings, the surveyed water level in Wilder Lake on May 3, 2019 was 422.93 m above sea level (asl). Given that the elevation was measured in the spring, this should be considered a time of higher water level than the summer months, but there is very little fluctuation in the water level in the lake due to the large size of the lake and consistent outfall elevation of Camp Creek.

Looking at the proposed elevations of the proposed Sunny Rock Drive access road into the subdivision, the low point in the road is located at the Camp Creek culvert crossing at an elevation of 423.65 m asl. As such, the roadway elevation is approximately 0.7 m above the typical water level in Wilder Lake. Therefore, the water level in Wilder Lake would need to rise 0.7 m before spilling over the roadway, which equals an increase in roughly 250,000 m³ of additional water in Wilder Lake.

As noted in the attached letter, the installed culvert under the proposed Sunny Rock Drive has increased in size from a 600 mm diameter to a 900 mm diameter culvert. The installed wildlife culvert for turtle crossings also serves to act as a secondary 900 mm diameter culvert to convey flow under the roadway, if necessary, should the primary culvert

become blocked. Replacing the 600 mm diameter culvert with a 900 mm diameter culvert roughly triples the flow capacity of the culvert without considering the secondary culvert.

In summary, the large volume of available water storage volume within Wilder Lake provides attenuation of peak flows for runoff draining to Camp Creek during major storm events, especially since Wilder Lake is primarily groundwater fed. Historically, the previously installed 600 mm diameter culvert was sufficient to convey flow in the past. The currently installed 900 mm diameter culvert triples the flow capacity of the previous culvert and a secondary 900 mm diameter culvert provides redundancy in case it becomes plugged.

As such, based on the information provided, the proposed Sunny Rock Drive and existing culverts provide safe access into the proposed subdivision, as runoff is not expected to spill over the roadway during a Regional Storm event, or if the primary culvert becomes plugged.

I trust that this is sufficient to satisfy your comment. Please do not hesitate to contact me if you have any questions regarding the above noted information, or should you wish to discuss this further.

Yours truly,

GM BLUEPLAN ENGINEERING LIMITED

Per:

A handwritten signature in blue ink, appearing to read 'Ian Eriksen', is written over a light blue horizontal line.

Ian Eriksen, P.Eng.
IEE/mr

Encl.

cc: Randy Bye, H. Bye Construction (via email: rhbye@icloud.com)
Harry Bye, P.Eng., H. Bye Construction (via email: h.bye@hbyeconstruction.com)
File No. 218173

Homestead Development Safe Access To Proposed Subdivision

Date: April 9, 2020

No. of Pages: 3

Project 263512 Southgate Road 26
Address: Roll No.: 420706000119700
Part of Lots 2, 3, and 4, Concession 21
Geographic Township of Egremont
Township of Southgate

Dist.: Ian Eriksen, P.Eng, Project Engineer, GM BluePlan Engineering Limited: ian.eriksen@gmblueplan.ca
Randy Bye, Randharr: rhbye@icloud.com

Brief History and Background:

Stan Lawrence of the Fuller Brush Company bought and named “THE HOMESTEAD” around the time of WWII. The Homestead was purchased as a resort to fly his employees in for weekend getaways involving horseback riding and swimming. After about 10 years or so Mr. Lawrence along with brother employees Clark and Reuben Watson began construction of a nine hole golf course. John Watson who is Clark’s son, born in 1943, started working at The Homestead in 1960 at the age of 17. He remembers helping his Dad and Uncle Reuben building the last of the front nine holes. John still is a fixture around the Homestead as he cuts grass during the summer months.

In or around 1950 “THE PINES” parcel on the most westerly part of the property was purchased by Stan Lawrence. This second parcel served well in the construction of the back nine holes to complete an 18 hole golf course. Construction of the back nine holes was completed in the late 1960’s.

Wilder Lake is approximately 300 feet above the town of Durham. Although the shape of the lake was never changed during marl excavation in the early 1900's the depth of the lake changed and the trains loaded with marl coasted by gravity into Durham for processing at the kiln. The engines were required to pull the empty rail cars back for reloading.

Statement of Facts:

1. The concrete 24 inch diameter culvert across the bottom of The Pines lane has been there since the 1940s and has never flooded or washed out. This culvert receives the overflow from Wilder Lake in its entirety. See Figure 1.
2. The original wooden and stump culvert that crossed the current entrance into The Homestead, which was approximately 24 inches in diameter, never flooded or washed out since construction in the 1940s. This culvert has since been replaced with two 36 inch diameter steel culverts. With one culvert installed slightly above the creek elevation acting as both an overflow culvert and a turtle crossing. See Figure 2.
3. All of the water that exits the property on the north west corner, including all of the Wilder Lake overflow, flows under Southgate Rd. #26 through a 30 inch diameter culvert installed by the township. See Figure 3.
4. Wilder Lake has no significant inflow. It is entirely a spring-fed lake.
5. All available recollection (1940s and forward) show there has been no known fluctuations over 3 inches in the lake because of excessive rain. This includes Hurricane Hazel.

6. If the overflow of the Wilder Lake is plugged entirely during normal summer conditions it takes a week for it to rise 1 inch. Beaver have blocked the outlet in the past causing the elevation of the lake raise 12". See Figure 4.
7. Wilder Lake is 88 acres in area.



Figure 1: Original 24" Diameter Concrete Culvert Crossing "The Pines" Access Road.



Figure 2: 2-36" Diameter Steel Culverts Installed in 2018.



Figure 3: 30" Diameter Steel Culvert Crossing Southgate Road 26, Inlet Side.



Figure 4: Wilder Lake Outlet.

Conclusion:

Given a 24" diameter culvert has adequately handled the Wilder Lake over flow since the 1940s, two 36" diameter culverts can be reasonably assumed to handle all future Wilder Lake overflow providing safe access to the proposed development.

Per: Harry Bye

Harry Bye, P. Eng.

